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ABSTRACT

The effects of feedback on motivation were investigated with a 3 x 3 factorial design. Adult subjects (72 male college students) read prose sentences and completed cloze test items. Feedback on each item was either immediate, delayed, or omitted. A cloze retention test over the sentences was given either immediately, delayed, or was omitted. To assess motivation, the subjects were given a continuation of the original passage which they read for as long as they wished. The time spent reading was recorded as a measure of perseverance and motivation. The results indicated that (1) delayed feedback produced significantly more learning on the original task than did immediate feedback, (2) immediate feedback produced significantly more perseverance on the continuation passage than did delayed feedback, and (3) perseverance on the continuation passage was positively correlated (.46) with scores on a comprehension test over the continuation passage. The results are explained in terms of differential affective responses acquired to the reading task under different feedback conditions. Tables, references, and appendixes are included. (Author/WB)

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MOTIVATIONAL EFFECTS OF FEEDBACK IN READING

BY

JOHN T. GUTHRIE

JULY 1970

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Abstract

The effects of feedback on motivation and learning were investigated with a 3x3 factorial design. Adult subjects read prose sentences and completed cloze test items. Feedback on each sentence was either immediate, delayed, or omitted. A cloze retention test over the sentences was given either immediately, delayed, or was omitted. To assess motivation, the subjects were given a continuation of the original passage which they read for as long as they wished. The time spent reading was recorded as a measure of perseverence and motivation. The results were that: a) delayed feedback produced significantly ($p < .05$) more learning on the original task than immediate feedback; b) immediate feedback produced significantly ($p < .01$) more perseverence on the continuation passage than delayed feedback; and c) perseverence on the continuation passage was positively correlated (.46) with scores on a comprehension test over the continuation passage. The results are explained in terms of differential affective responses acquired to the reading task under the different feedback conditions.

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Motivational Effects of Feedback in Reading

It has often been suggested that the effect of feedback on human performance is twofold (Ausubel, 1963; Bilodeau & Bilodeau, 1961; Locke, Cartledge & Koeppel, 1968). First, feedback is said to facilitate learning either by the reinforcement of correct responses (Skinner, 1965) or the correction of wrong responses (Adams, 1968; Guthrie, 1970). Second, it has been recognized that feedback may have motivational properties which affect performance (Locke, Cartledge & Koeppel, 1968). The central concern of this study is the influence of feedback on the motivation of the learner.

In a review of the research literature on the motivational effects of knowledge of results, Locke, Cartledge, and Koeppel (1968) document the principle that feedback presented to a subject while he is performing a task will have a motivational effect. The tasks used in this research are typically psychomotor tasks requiring the subjects to squeeze a dynamometer, twist a knob, or cancel certain numbers from a random list. Since performance on these tasks requires little, if any, learning, the facilitative effect of feedback is said to be motivational. That is, it is reasonable to assume that feedback increases the

energy output but not the learning of the subjects on these tasks. From this review of more than 50 studies, it is clear that the research on this topic has been limited to the psychomotor domain. Whether the principle of the motivational effect of feedback holds for verbal learning and other categories of cognitive phenomena remains to be determined. Accordingly, the purpose of the present study was to examine the influence of feedback on motivation in meaningful verbal learning tasks.

One parameter of reinforcement and feedback which has been shown to affect learning is delay. In research with animals, delay of reinforcement has often been found to impair learning (Kimble, 1961). On the contrary, with humans, the delay of reinforcement has been discovered to facilitate the acquisition of concepts (Bourne, 1966), the learning of foreign vocabulary (Brackbill, Wagner & Wilson, 1964) and the retention of complex subject matter (Sassenrath & Yonge, 1968). In each of these studies, delayed feedback was superior to immediate feedback for the improvement of verbal learning.

Although delayed feedback has been found to increase learning on verbal tasks, it is not known how delayed feedback influences motivation. It is plausible that delayed feedback would be exasperating to the subjects

performing a verbal task, whereas immediate feedback would be likely to be reassuring or gratifying. Consequently, it was hypothesized that delayed feedback would reduce the subjects' motivation to perform the task, while immediate feedback was expected to increase the subjects' motivation. For the present study motivation is defined as perseverence in the performance of a task (Kipnis & Wagner, 1965). That is, if a variable influences an individual's perseverence in the performance of a task, the variable is said to have a motivational effect.

Method

Subjects. The subjects were 72 male college students who received $1.50 per hour for their participation.

Materials. The subject matter learned by the subjects was drawn from the section on archaeology in the Encyclopedia Britannica. The passage used in the learning phase of the experiment was 500 words in length (see Appendix A). The sentences in the passage were edited to lengths of 15-25 words. There were 25 such sentences which comprised the passage. A cloze test of 25 items over the material was constructed by deleting one word from each sentence (see Appendix B). The position of the deletion was determined at random with the constraint that an equal number of deletions occurred in the beginning, middle, and end of the sentences. The deleted words

included only nouns, adjectives, and adverbs. The materials contained in the task used to assess motivation consisted of a 1,000 word passage which was a continuation of the original topic (see Appendix C). A brief 10-item multiple choice test with 4 alternatives for each item was constructed to assess the subjects' comprehension of this second passage (see Appendix D).

Treatment Conditions. The experimental design was a 3x3 factorial. The two factors were knowledge of the correct response (KCR) and test (T). The three levels of KCR were: Immediate KCR, Delayed KCR, and No KCR. The three levels of T were: Immediate T, Delayed T, and No T. The primary purpose of the experiment was to examine the effects of immediate and delayed KCR on motivation and learning. If a design is employed in which only the immediacy of KCR is manipulated, and the test is given immediately following the learning trials, the delay of the test is confounded with the delay of KCR. For instance, suppose the following sequence of events occurs for a single trial: Stimulus, Response, Feedback (KCR), Test. As the time interval between the Response and the KCR is increased, the time interval between the stimulus and the test is also increased. To avoid this confounding, the time interval between the response and KCR (KCR delay) was manipulated independently of the time interval between the Stimulus and the Test (Test delay) in a factorial manner.

That is, the three levels of the test factor were included in the design to control for the confounding of KCR delay and Test delay which is inherent in the three levels of the KCR factor.

Procedure. The subjects were randomly assigned to one of the nine treatment conditions and were run individually. The experimenter and the subject were seated on opposite sides of a table and were separated by a tall wooden divider. After reading the instructions for the learning task, the experimenter administered one practice trial. The learning task was then presented. On each trial the subject was presented one sentence and given 10 seconds to read it. The experimenter then removed the sentence and presented a cloze test item consisting of the original sentence with one word deleted. The subject was given 10 seconds to write the answer on a piece of paper. Next, one of the feedback conditions was administered, Immediate KCR, Delayed KCR, or No KCR, for 2 seconds. KCR consisted of seeing the original sentence with the answer included. The subjects in the Delayed KCR condition received KCR after a 20 second interval during which no task was assigned. After going through all the sentences in this way, T was administered. Subjects receiving Immediate T were given a 25-item cloze test made up of the same sentences as those used in the learning trial with the same words deleted. Subjects in the Delayed T condition played a concept formation game for

about 8.5 minutes before taking the test. The No T condition consisted of simply omitting this test. Note that the 8.5 minute delay of the test is equal to the sum of the 20 second delays for the KCR. This means that the subjects who were in the Immediate KCR-Delayed T condition had the same average time interval between the occurrence of the stimuli and the Test as the subjects in the Delayed KCR-Immediate T condition.

After the completion of the learning phase, the motivation phase was initiated. The subject was presented a passage of 1,000 words which was a continuation of the original topic. The experimenter instructed the subject to read the passage for as long as he wished and that he would be given a comprehension test over the material when he felt he was ready to take it. The time the subjects spent reading was recorded by the experimenter, and a 10-item multiple choice test was administered when the subject requested it. The time spent reading the material is an index of the subject's perseverence and is a test of the subject's motivation to learn. It should be noted that perseverence is a commonly employed measure of motivation (Kipnis & Wagner, 1965) and is widely acknowledged as vital to academic success (Carroll, 1963). Table 1 outlines the procedure.

Table 1

Experimental Procedure

Learning Phase	Motivation Phase
1. Reading Responding Feedback (Immediate, Delayed, or None) for the Original Passage	3. Reading (Time determined by subjects) of the Continuation Passage
2. Retention Test (Immediate, Delayed, or None) for the Original Passage	4. Retention Test for the Continuation Passage

Note.—The tasks were administered in the order 1, 2, 3, 4 for all subjects.

Results

The dependent variable of primary interest was the time spent voluntarily reading the continuation passage which was given to the subjects during the motivation phase of the study. The critical issue was whether the treatment conditions administered during the learning phase affected the subjects' perseverence in reading the passage during the motivation phase. Consequently, a 3x3 analysis of variance was conducted on the time scores. The result was that the feedback factor accounted for a significant portion of variance ($F = 4.89$, $df = 2/63$, $p < .05$). Neither the main effects of test factor nor the interaction of test with feedback were significant. A post hoc analysis using the Neuman-Keuls procedure indicated that immediate feedback during learning produced significantly more perseverence than delayed feedback ($q = 4.37$, $df = 63$, $p < .01$). Although immediate feedback was superior to no feedback and delayed feedback was inferior to no feedback, the differences were not statistically significant (see Table 2).

It is reasonable to question whether the effect of immediate feedback on perseverence was direct or whether it was indirect, being mediated by the amount of learning on the original passage. It is possible that immediate feedback produced more learning of the original passage than delayed feedback and that the perseverence in reading

Table 2

Perseverence in Reading Following Different Conditions of Feedback and Testing

Test	Feedback: Immed.	Feedback: Delayed	Feedback: None	Average
Immediate	10.60	7.95	8.71	9.09
Delayed	10.91	7.62	8.27	8.93
None	9.26	6.95	8.53	8.25
Average	10.26	7.51	8.50	

Note.—Figures represent mean time in minutes spent voluntarily reading the continuation of the original passage.

the continuation passage was facilitated by the amount of learning of the original passage. This question may be answered by examining the correlation of the scores on the immediate retention test for the original passage with the amount of time spent reading the continuation passage. This correlation was .11 which is not significantly different from zero. It is safe to conclude that the amount of learning on the original passage was not related to the perseverence on the continuation of the passage.

A second issue of interest was whether the treatment conditions affected the amount of learning on the original passage. The scores on the immediate retention test on the original passage were examined with a 2x3 analysis of variance. The factors in the analysis included the immediate feedback, delayed feedback, and no feedback; and immediate test and delayed test. The outcome was that a significant main effect was attributable to feedback ($F = 19.38$, $df = 2/42$, $p < .01$). Neither the main effect for test nor the interaction of feedback and test were significant. Subsequent analyses with the Neuman-Keuls procedure indicated that delayed feedback was superior to immediate feedback in facilitating learning ($q = 3.09$, $df = 42$, $p < .05$). This result replicates the findings of numerous other investigators that delayed feedback is more likely to facilitate cognitive learning than immediate

feedback (Bourne, 1966; Brackbill, Wagner, & Wilson, 1964; Sassenrath & Yonge, 1968). In addition, immediate feedback was superior to no feedback in producing learning as measured by the immediate retention test (q = 6.17, df = 42, $p < .01$). See Table 3.

Table 3

Learning as a Function of Immediacy of Feedback and Testing

		Feedback			
		Delayed	Immed.	None	Average
Test	Delayed	19.88	17.25	12.75	16.63
	Immediate	19.12	17.25	10.00	15.46
	Average	19.50	17.25	11.38	

Note.—The cells contain the mean number of cloze items correct on the 25-item immediate retention test.

It is important to know whether the increase in perseverence realized by immediate feedback results in more comprehension of the materials read during the motivation phase. In this regard, it is interesting to note that the correlation between the time spent reading the continuation passage (perseverence) and the score on the brief multiple choice test over the passage was .46 ($p < .01$). This indicates that time spent studying the passage facilitated learning of the material.

Discussion

The principal findings of this study are that immediate feedback is superior to delayed feedback in facilitating perseverence and that delayed feedback exceeds immediate feedback in producing learning. The latter result confirms the findings of several previous investigations (Bourne, 1966; Brackbill, Wagner & Wilson, 1964; Sassenrath & Yonge, 1968). However, the first result is unique and consequently it requires further discussion.

The motivational effect of feedback is explained by Locke *et al.* (1968) as a goal-setting phenomenon. Feedback is claimed to improve performance by providing a basis for subjects to construct goals for their performance which exceed their current levels of performance. There are two reasons, however, why this explanation is inadequate to account for the present data. First, although immediate feedback was superior to delayed feedback, no feedback was not different from either of the other two conditions. Thus, this study produced no evidence that the presence of feedback was different from the absence of feedback in affecting motivation.

Second, the assessment of the motivational effect of feedback is different in the present study than in the studies reviewed by Locke *et al.* (1968). In the paradigm in that review, motivation was measured concomitantly

on the same task and at the same time as the feedback was administered. Consequently, the goal-setting explanation is plausible. However, in this study the feedback conditions were observed to affect motivation on a subsequent task performed by the subjects after the original task, which contained feedback, had been completed. Since the second task required the subjects to read different passages than they had read on the original task, and since no feedback was available on the second task, it is unlikely that the feedback conditions of the first task affected performance on the second task by influencing goal setting.

The most plausible explanation for the motivational effect of immediate and delayed feedback is that differential affective responses are elicited by the two feedback conditions. Immediate feedback presented to the subject while he is reading a passage and answering questions over the passage is likely to evoke positive affective responses to one or more aspects of the task situation. Since the written passage is a salient stimulus in this context, positive affective responses may be associated with the passage. Consequently, if a similar passage is presented at a later time, the subject will invest considerable time and energy in order to maintain contact with the material. Conversely, delayed feedback is likely to evoke negative affective responses which are associated

with the written material and which lead to the avoidance of similar passages in the future. In other words, immediate feedback produces approach behavior to some aspect of the reading task, and delayed feedback produces avoidance behavior to the reading task. This account of the motivational effects of feedback is entirely retrospective and is not demonstrated by the data of this study. However, this account represents a promising hypothesis which merits its own experimental investigation.

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Appendix A

Reading Passages on Archaeology (Original)

Practice Trial: Systematic excavations steadily continued after World War II, embracing almost all areas of Siberia and Russian Turkistan.

1. The earliest Neolithic culture is represented by the hunting and fishing culture in the steppes and in the oases.
2. The small flint industry continued from the earlier Mesolithic times, and pointed or round-bottomed pottery was known.
3. From the end of the third millennium B.C. to 1700 B.C., food-producing economy (cattle breeding), copper, painted ware, and other elements from the south entered the area.
4. Copper knives and stone sledges for mining appeared, while pottery was mostly round-bottomed, decorated with geometric stamped or scratched patterns in rows.
5. The typical burial of the dead was in a contracted position under an earth mound.
6. Excavations in Khwarizm revealed large communal houses of oval form, which was given the name Kelteminar in the region of the Aral Sea.
7. In Altai and the region of Minusinsk, this culture was called Afanasievo, although related cultural features are found between southern Russia and the upper Yenisei.

8. Continuous culture development is seen in the beginning of the Bronze Age in the middle of the second millennium B.C.
9. This culture, named Andronovo, is relatively uniform in this wide area in spite of some local variations.
10. Agriculture now played an important role, and people lived in earth huts, reared cattle, sheep, and horses.
11. Flowerpot-shaped vessels were flat-bottomed, well smoothed, decorated with geometric patterns, triangles, rhombs, and meanders, pointing to relationship with the painted pottery of the southern regions.
12. Burial in contracted position persisted, and wooden constructions in rich graves may have designated social differentiation.
13. The typical elements of a religion of food producers, the fire and sun cult, as well as bread offering, are evidenced.
14. Toward the end of the second millennium B.C. in Minusinsk a Sinid group broke in which brought with it a bronze inventory of Ordos type.
15. Cemeteries of single graves covering the dead in extended position in stone cists, equipped with round-bottomed pots, appeared.
16. New people mixed with the local Andronovo population, and through this immigration the so-called Karasuk culture originated.

17. It spread its influences farther to western Siberia and Russian Turkistan, and trade relations extended to central Russia.

18. Exchange with centres of the far eastern metallurgy introduced a new character of material culture and stimulated the flourishing of metal industry in many areas.

19. These new objects included daggers and knives terminating in animal sculptures and a series of ornaments.

20. The regions west of Minusinsk showed variations of Karasuk culture with strong local elements with which the persistence of the ancient racial type corresponds.

21. The Karasuk period, whose chronology was based on comparisons with north Chinese bronzes, persisted down to 700 B.C., and culture developed along similar lines until 200 B.C.

22. Vital trade contact is traced from north China and the Baikal region to the Black Sea and the Urals, influencing the uniformity of the culture.

23. A mounted warrior element occurred, although the agricultural and food-producing, or cattle breeding, elements persisted.

24. In the high Altai, Tien-shan, and Pamirs appeared graves of nomadic warriors with coburial of horses.

25. Regarding the local facies or separate political confederations, cultures of this period are called Tagar in the region of Minusinsk and Maiemiric in Altai.

Appendix B

Cloze Test on Original Passage

Practice Trial: _____ excavations steadily continued after World War II, embracing almost all areas of Siberia and Russian Turkistan.

1. The earliest _____ culture is represented by the hunting and fishing culture in the steppes and in the oases.
2. The small flint industry continued from the earlier Mesolithic times, and _____ or round-bottomed pottery was known.
3. From the end of the third millennium B.C. to 1700 B.C., food-producing economy (cattle breeding), _____, painted ware, and other elements from the south entered the area.
4. Copper knives and stone sledges for mining appeared, while pottery was mostly round-bottomed, decorated with geometric stamped or scratched patterns in _____.
5. The typical burial of the dead was in a _____ position under an earth mound.
6. _____ in Khwarizm revealed large communal houses of oval form, which was given the name Kelteminar in the region of the Aral Sea.
7. In Altai and the region of Minusinsk, this culture was called Afanasievo, although related cultural features are found between _____ Russia and the upper Yenisei.

8. Continuous culture development is seen in the beginning of the Bronze Age in the middle of the second _____ B.C.

9. This culture, named Andronovo, is relatively _____ in this wide area in spite of some local variations.

10. Agriculture now played an important role, and people lived in earth huts, reared cattle, _____, and horses.

11. Flowerpot-shaped vessels were flat-bottomed, well _____, decorated with geometric patterns, triangles, rhombs, and meanders, pointing to relationship with the painted pottery of the southern regions.

12. Burial in contracted position persisted, and wooden constructions in rich graves may have designated social _____.

13. The typical elements of a religion of food producers, the fire and sun cult, as well as _____ offering, are evidenced.

14. Toward the end of the second millennium B.C. in Minusinsk a _____ group broke in which brought with it a bronze inventory of Ordos type.

15. Cemeteries of single graves covering the dead in extended position in _____ cists, equipped with round-bottomed pots, appeared.

16. New people mixed with the local Andronovo population, and through this _____ the so-called Karasuk culture originated.

17. It spread its influences farther to western Siberia and Russian _____, and trade relations extended to central Russia.

18. Exchange with _____ of the far eastern metallurgy introduced a new character of material culture and stimulated the flourishing of metal industry in many areas.

19. These new objects included daggers and _____ terminating in animal sculptures and a series of ornaments.

20. The regions _____ of Minusinsk showed variations of Karasuk culture with strong local elements with which the persistence of the ancient racial type corresponds.

21. The Karasuk period, whose _____ was based on comparisons with north Chinese bronzes, persisted down to 700 B.C., and culture developed along similar lines until 200 B.C.

22. Vital trade contact is traced from north China and the _____ region to the Black Sea and the Urals, influencing the uniformity of the culture.

23. A _____ warrior element occurred, although the agricultural and food-producing, or cattle breeding, elements persisted.

24. In the high Altai, Tien-shan, and Pamirs appeared graves of _____ warriors with coburial of horses.

25. Regarding the local facies or separate _____ confederations, cultures of this period are called Tagar in the region of Minusinsk and Maiemiric in Altai.

Appendix C

Reading Passages on Archaeology (Continuation)

The art of the steppe zone from southern and eastern Russia to China developed into specific animal style. The decorative talent is illustrated in the great ingenuity which the artist displayed in filling up with animal figures a shape determined by practical ends. The elk, ram, bird, cat-animal portrayals of the middle of the first millennium B.C. exhibit a conjunction of the highest verisimilitude with rigorous stylization. Later the organic form of the animal was ruled by extreme stylization. The elements of naturalism link this style with the naturalistic animal style of the north Eurasian forest belt. New motifs in the steppe and forest steppe belt originated in a borrowing of ideas from the near east and China. This included portrayal of groups of animals, antithetic and interwined groups of bodies, curled up animals, beasts, and birds of prey.

Pre-Christian culture, although influenced by the Persian empire, progressed gradually until the new flow from the east started. The territory between the lower Volga and Altai represents a unit with a common destiny. Chinese and western sources report that the Sarmatian-Sakian time was followed by the supremacy of the Huns, who dominated the western slopes as far as the Urals and the Volga. Archaeological investigations show that the east-west movement started at a time when the Hun confederation had not yet been consolidated. In east Kazakhstan appeared an eastern

group of Stone Tombs people not later than the fifth century B.C. The main east-west stream ran presumably from Manchuria-upper Lena, along the northern border of the Gobi, into the Lake Balkash territory and from there on, avoiding powerful cities in Khwarizm, into the steppes north of the Caspian. For centuries up to the consolidation of the Turkish khanate in the sixth century A.D., Mongoloid components were mingling with the local Europoid, which have never been wiped out. The known pre-Turkic tribes -- Massagetians, Sakians, Usuns, Khakas -- all show more or less Europoid traits.

The pre-Classic period in Guatemala is represented by the findings made in rectangular or bottle-shaped pits with small top openings, dug deep into the subsoil for storage or other purposes (some of them contained burials), and in irregular excavations (possibly dug to obtain material for building) filled with trash. There is evidence for maize, polished greenstone celts, excellent pottery, textiles, terra-cotta figurines (human and monkey effigies), and flat and cylindrical clay stamps, as testimonies of a sedentary way of life of longstanding tradition. One of the largest earth mounds developed from a small platform, about 6 feet tall, through six major reconstructions and several minor additions, to a stepped pyramid more than 65 feet high, covered with mud plaster. Two burial chambers have been discovered near the top. Several bodies were found in each

chamber, masters -- who had been lying extended on a low wooden platform in the centre of the tomb -- and their retinue.

During the Classic period strong influences from central Mexico were felt throughout the whole area. Now tombs were beam-roofed chambers. The earliest ones were covered by low platforms, the later ones by pyramidal or stepped pyramidal structures with stairways on one side and one-room temples on the summit. These funerary monuments were rebuilt each time a new tomb was made, so that a number of superimpositions resulted. Most, if not all, of the tombs were built for the interment of important adult males with slaves or concubines -- generally adolescents 13-17 years of age -- sacrificed to accompany their masters. In three of the tombs the suite included a dog. In others, instead of complete skeletons of retainers, only the skulls with lower jaws were found, evidence of ceremonial beheading. In some cases, the main occupant was sitting on a wooden litter or box. The furniture includes always a milling stone and a variety of fine pottery vessels, jade and shell ornaments, and pyrite mosaic mirrors, and there are traces of objects of perishable materials, such as cloth and feathers, but not of the products of metallurgy.

The two major cities in northern India, Harappa and Mohenjo-Daro, may, in the absence of any other sites of comparable size yet discovered, be taken as twin capitals.

Their material culture is identical, and although the site of Harappa has been much robbed, enough remains to imply that the city had a plan closely similar to that of the better-preserved Mohenjo-Daro. The layout appears to have consisted of a gridiron of building blocks separated by wide streets; there is some evidence for 12 such blocks forming a square city one mile across, oriented to the points of the compass, and with the central block on the west side occupied by a defended citadel set on a massive platform of mud brick faced with baked brickwork. At Harappa the defenses of the similar citadel have been partially excavated, showing the presence of angle towers, monumental gateways, and terraced approach roads. The defenses themselves comprised a clay rampart and mud-brick wall bonded into a similarly constructed platform, and the outer face was revetted with a baked brick skin.

The lower town, explored in large areas at Mohenjo-Daro, consisted of courtyard houses set within the main blocks and separated by small irregular lanes. Bathrooms were common, and there were elaborate drainage systems communicating with main sewers in the streets. At both the cities blocks of what appear to be workmen's quarters of identical two-roomed units have been recognized, at Harappa associated with a series of circular corn-pounding platforms and a great granary; at Mohenjo-Daro the comparable granary was on the citadel itself. The brickwork was probably largely plastered, and the use of wood for upper stories is likely.

The buildings on the Mohenjo-Daro citadel include a large bath with surrounding verandah, assembly halls and what look like collegiate or communal buildings as well as the granary. There is no recognizable palace or temple, and a priesthood with affinities to Hindu tradition has sometimes been inferred as the likely seat of authority.

Appendix D

Multiple-Choice Test on Continuation Passage

1. Which of the following is a characteristic of the art of the steppe zone?

   a. realistic human designs
   b. extreme stylization of the animal
   c. water-bird sculptures portrayed in wood
   d. polychromy

2. The new flow of people from the east to Russia:

   a. found the northeastern coastal region occupied by a population related to the Eskimo
   b. brought with them the flint tradition of small implements
   c. started at a time when the Hun confederation had not yet been consolidated
   d. marked the transition to nomadism and mounted-warrior conditions.

3. The east-west flow to Russia:

   a. probably began in the sixth century A.D.
   b. seemed to concentrate in the larger cities
   c. resulted in a mingling of the Mongoloid with the Europoid
   d. was paralleled by a north-south migration in the same period

4. During the Pre-Classic period in Guatemala the evidence cited indicates:

   a. there was a large quartzite industry
   b. the horse was of major importance
   c. priests held a high-ranking social position
   d. the life style was largely sedentary

5. Items found in tombs of the Classic period of Guatemala suggest:

   a. The people lived quite simply and frugally
   b. females were viewed as equal in social status
   c. metallurgy was not known
   d. there was extensive use of mummification and tattooing

6. Possible uses of the excavations/pits found in Guatemala included:

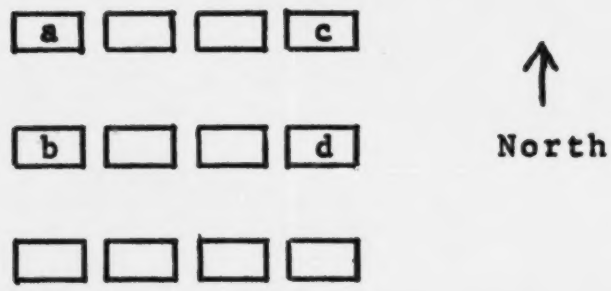
   a. obtaining building materials
   b. aging wines
   c. bathrooms
   d. punishment/confinement

7. Harappa and Mohenjo-Daro differed in:

a. size
b. regional location
c. political importance
d. preservation

8. Which letter indicates the position of the citadel in Harappa, if each square represents a city block?

a.
b.
c.
d.



9. Artifacts of Harappa and Mohenjo-Daro include:

a. Round corn-pounding platforms
b. Tools of bone and flint
c. Arm rings and jade jewelry
d. Stone sculptures

10. Buildings found in Harappa and Mohenjo-Daro:

a. include temples and palaces
b. vary from two-room units to courtyard houses
c. are built of brick and clay rather than wood
d. are built around a central market plaza